

On the relative effects of positive and negative verbal feedback on males' and females' intrinsic motivation

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ABSTRACT

Research on the effect of verbal feedback on intrinsic motivation reveals that negative feedback decreases the intrinsic motivation of both males and females, while positive feedback has yielded conflicting findings. More specifically, positive feedback has been found to increase the intrinsic motivation of males but to decrease that of females. However, certain studies have failed to replicate these findings. The first purpose of this study was to assess the relative effects of positive and negative feedback on males' and females' intrinsic motivation. The second purpose of this study was to replicate findings by Vallerand and Reid (1984) regarding the mediating effects of feelings of competence on the verbal feedback-intrinsic motivation relation. Male and female undergraduate students performed an interesting task and received either positive or negative feedback relative to their performance. Subjects then filled out intrinsic motivation and feelings of competence scales. Results showed that, relative to negative feedback, positive feedback led to higher levels of intrinsic motivation and competence feelings for both males and females. Further, results of the path analysis involving verbal feedback, competence feelings, and intrinsic motivation revealed a picture clearly in line with a mediating model. Results are discussed in light of cognitive evaluation theory and suggestions for future research are offered.

Over the past 15 years, considerable attention has been accorded the concept of intrinsic motivation. Intrinsic motivation has been defined in various ways (see Deci 1975; Deci & Ryan, 1980, 1985 for reviews). Perhaps the most informative definition has been offered by Deci (1975). According to Deci, intrinsic motivation is based in the needs to feel competent and self-determining in dealing with the environment. That is, people engage in activities of their own choosing in order to experience feelings of efficacy and personal control. To the extent that activities allow the experience of such feelings they become intrinsically motivating and may be engaged in repeatedly in the absence of apparent

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contingencies. Recent research (e.g., Blais, Vallerand, & Pelletier, 1985; Wankel & Kreisel, 1985) supports the postulate that feelings of competence and self-determination represent important determinants of one's participation in various activities thought to be intrinsically motivating, such as hobbies, physical activity, and sports (see Ryan, Vallerand, & Deci, 1984; Vallerand, Deci, & Ryan, 1987).

Based on his definition of *intrinsic motivation*, Deci (1975; Deci & Ryan, 1980, 1985) has proposed cognitive evaluation theory in order to explain how the effects of various variables on intrinsic motivation may take place. The theory has undergone two major changes over the past 10 years. For the present purposes, only the most recent formulation (Deci & Ryan, 1985) is presented.

Cognitive evaluation theory suggests that three types of events can have functional significance for intrinsic motivation. These events are the informational, the controlling, and the amotivating events. Informational events are those that allow the individual to feel competent and self-determining. Such events promote intrinsic motivation. For instance, providing positive verbal feedback or allowing choice in the type of activities to be performed represent informational events which facilitate intrinsic motivation. On the other hand, controlling events undermine the individual's sense of self-determination. They instil external control and diminish intrinsic motivation. For example, having to perform "up to standards" or to perform a task in order to receive a reward represent controlling events which decrease intrinsic motivation. Finally, amotivating events are events that underscore the individual's sense of incompetence. Because individuals come to feel incompetent, their intrinsic motivation for the activity is decreased. Negative performance feedback represents a powerful amotivating event which decreases intrinsic motivation.

Research, in general, tends to support cognitive evaluation theory (see Deci & Ryan 1980, 1985; Vallerand & Halliwell, 1983 for reviews). For instance, informational events such as choice (e.g., Swann & Pittman, 1977; Zuckerman, Porac, Lathin, Smith, & Deci, 1978) and positive verbal feedback of performance (e.g., Deci, 1971; Vallerand, 1983; Vallerand & Blais, 1987; Vallerand & Reid, 1984; Weiner & Mander, 1978) that, respectively, facilitate self-determination and feelings of competence lead to increases in intrinsic motivation. On the other hand, controlling events such as rewards (e.g., Deci, 1971), awards (Lepper, Greene, & Nisbett, 1973), surveillance (Lepper & Greene, 1975), deadlines (Amabile, DeJong, & Lepper, 1976), and competing to win at all costs (Deci, Betley, Kahle, Abrams, & Porac, 1981; Vallerand, Gauvin, & Halliwell, 1986a) have been found to decrease intrinsic motivation. Finally, amotivating events such as negative performance feedback of incompetence have been found to decrease intrinsic motivation both on cognitive (Deci & Cascio, 1972) and motor tasks (Vallerand & Blais, 1987; Vallerand, Gauvin, & Halliwell, 1986b; Vallerand & Reid, 1984).

While the above results appear to yield sound support for the theory, there appears to be at least one anomaly. It has been reported that positive verbal feedback leads to differential effects on the intrinsic motivation of males and females. Specifically, Deci (1972; Deci, Cascio, & Krusell, 1975) reported that positive feedback of performance increases the intrinsic motivation of males while it decreases that of females.

In interpreting these results, Deci (1975) suggested that, due to traditional gender-role socialization practices, the informational aspect of praise may be more salient for males (thereby increasing their intrinsic motivation), whereas the controlling aspect may be more salient for females (thus, decreasing their intrinsic motivation). According to Deci, boys have been encouraged to be more independent and achievement oriented while girls have been encouraged to be more dependent and interpersonally sensitive. In adult life, males are thus more likely to focus on the informational aspect of praise since their socialization has guided them toward looking for evidence of independent achievement rather than evidence of having behaved in order to please the provider of praise. Conversely, females are more likely to focus on the controlling aspect because their upbringing has oriented them toward evidence of having pleased the reinforcer. The consequence is that positive performance feedback increases males' intrinsic motivation while it decreases that of females.

A review of the literature on the effects of positive feedback on the intrinsic motivation of both males and females reveals equivocal support for Deci's original findings. Certain studies have found positive feedback to be detrimental to the intrinsic motivation of female children (Kast, 1983; Zinser, Young, & King, 1982) and adults (Carone, 1975). On the other hand, other studies found no such negative effects, as positive feedback was found to enhance the intrinsic motivation of both female children (Anderson, Manoogian, & Reznick, 1976; Dollinger & Thelen, 1978; Swann & Pittman, 1977), adolescents (Harackiewicz, 1979), and adults (Weiner & Mander, 1978).

In the most recent article on the subject, Blanck et al. (1984) reported in two studies that positive verbal feedback increased adult males and females' intrinsic motivation both toward gender-typed and non-gender-typed tasks (however, the intrinsic motivation of both genders was higher on the gender-typed than the non-gender-typed tasks), and that this was also true for gender-role traditional females. The authors contend that Deci's (1975) hypothesis on the differential socialization process is no longer viable and that socialization content has changed sufficiently to make equally salient to both genders the informational aspect inherent in the feedback.

In light of the above mixed results, a first purpose of the present study was to compare the effects of positive and negative verbal feedback on males' and females' intrinsic motivation. Since negative feedback has been found repeatedly to decrease the intrinsic motivation of both males and females (see Deci & Ryan,

1985; Vallerand et al., 1987), the negative feedback condition was used as a benchmark to compare the effects of the positive verbal feedback on males' and females' intrinsic motivation. If Deci's hypothesis is accurate, a statistical interaction should be obtained such that males receiving positive feedback should display higher levels of intrinsic motivation than those receiving negative feedback while females' intrinsic motivation should not be differentially affected by positive and negative feedback. That is, if positive feedback decreases females' intrinsic motivation, no difference should be found between the positive and negative feedback conditions. On the other hand, if the hypothesis of Blanck et al. is accurate, only a feedback main effect should be obtained. This main effect should show that both males and females receiving positive feedback display higher levels of intrinsic motivation relative to those receiving negative feedback. In line with Blanck et al. (1984) it was predicted that positive feedback in the present study would produce greater amounts of intrinsic motivation than negative feedback for both males and females.

The second purpose of the study was to test cognitive evaluation theory's postulate regarding the mediating effects of competence feelings on the verbal feedback-intrinsic motivation relation. The theory posits that, when the informational aspect of the situation is salient, changes in intrinsic motivation are brought about by changes in perceptions and feelings of competence. Through the use of path analytic techniques, Vallerand and Reid (1984) showed that the effects of positive and negative feedback on males' intrinsic motivation were largely mediated by perceptions of competence. The second purpose of this study was therefore to replicate these findings with both a male and female population. In order to achieve this end, in addition to their intrinsic motivation subjects' competence feelings were assessed. It was predicted that the effects of positive and negative feedback on feelings of competence would parallel those of intrinsic motivation. More important, however, the mediating effects of competence feelings were assessed through a path analysis. In agreement with cognitive evaluation theory (Deci & Ryan, 1985) and the findings of Vallerand and Reid (1984), it was predicted that the intrinsic motivation-verbal feedback relation would be largely mediated by feelings of competence.

METHOD

Subjects and design

Subjects in this study were 30 male and 30 female anglophone undergraduate physical education students from the Montreal area. Subjects were randomly assigned to conditions of positive and negative feedback with 15 males and 15 females in each condition, thereby creating a 2 (gender) \times 2 (positive-negative feedback) design.

Task and questionnaires

Task. The task was the stabilometer motor task (Marietta 3-14a). The stabilometer task requires subjects to maintain their balance in a standing position on a platform rotating around a central pivoting

shaft. The subject's goal is to maintain balance for the entire duration of each trial. Trials lasted 20 seconds with a 20-second intertrial interval. There were 20 trials. Results from several studies (e.g., Vallerand & Reid, 1984; Weinberg & Ragan, 1979) indicate that the stabilometer is intrinsically motivating for both male and female undergraduate physical education students. A more detailed description of the stabilometer is presented by Wade and Newell (1972).

Questionnaires. The Mayo (1976) Task Reaction Questionnaire (TRQ) served as the measure of intrinsic motivation. It consists of 23 questions, each of which is scored on a seven-point scale. The maximum score is thus 161 and indicates a high level of intrinsic motivation. The items refer to task liking and interest, feelings of accomplishment and challenge, and reasons for performance. An example of one item is "The challenge posed by the stabilometer task really aroused my interest in it." The TRQ has been used in several studies (e.g., Fisher, 1978; Lopez, 1981; Mayo, 1976; Pretty & Seligman, 1984; Vallerand, 1983; Vallerand & Reid, 1984) and has been found to possess high internal consistency (.93, Mayo, 1976; .95, Pretty & Seligman, 1984) and split-half reliability (.96, Fisher, 1978). In addition, construct validity for the TRQ has been obtained in two ways. First, the TRQ has yielded findings directly in line with hypotheses derived from cognitive evaluation theory (see Fisher, 1978; Mayo, 1976; Vallerand, 1983; Vallerand & Reid, 1984). And second, results with the TRQ have been found to parallel those obtained with the behavioural free-time measure of intrinsic motivation, another often-used measure of intrinsic motivation (see Brawley & Vallerand, 1985; Pretty & Seligman, 1984). It thus appears that the TRQ is a reliable and valid measure of intrinsic motivation.

Subjects also completed a questionnaire dealing with competence-related affects. These scales were scored on a nine-point scale and dealt with the following affects: ashamed/proud, incompetent/competent, insecure/confident, stupid/smart, unskillful/skillful, ineffective/effective, and inadequate/efficient. Subjects were asked to indicate to what extent they presently experienced these affects following their performance on the stabilometer task. These seven affects were summed to form a competence feelings scale. Scores on the total competence feelings scale could vary from seven to 63. Order of questionnaires was counterbalanced.

Procedures

Subjects reported to the laboratory individually and were told that we were interested in finding out more about people's ability to keep balance on a task such as the stabilometer. They were informed that they would perform 20 trials on the stabilometer task and that the trials would last 20 seconds each, followed by a 20-second intertrial rest. Subjects were shown how the stabilometer works and were allowed one practice trial. They were also told that the experimenter would tell them how they were doing from time to time. The experiment then began. Subjects in the positive feedback condition received different positive verbal statements (e.g., "It looks like you have a natural ability to balance and it shows in your performance") following every fourth trial commencing on the third trial. Those in the negative feedback conditions received negative statements such as ("This is an easy task but your improvement is quite slow. Try to perform as well as you can") on the same schedule. Following completion of the trials, subjects were asked to respond to the questionnaires. Following completion of the questionnaires, subjects were debriefed, thanked for their participation in the experiment, and dismissed.

RESULTS

Internal consistency analyses

In order to assess the internal consistency of the Mayo TRQ and the competence feelings scale, Cronbach alpha analyses were computed. Results of the analyses with the Mayo TRQ revealed a standardized alpha coefficient of .94. Similarly,

results of the analyses performed on the sum of the seven affects comprising the competence feelings scale yielded a standardized alpha coefficient of .92. It thus appears that both the intrinsic motivation and competence feelings measures were reliable.

Analyses of variance

In order to assess the effects of gender and feedback on intrinsic motivation, a 2 (male-female) \times 2 (positive-negative feedback) analysis of variance (ANOVA) was carried out on the Mayo TRQ. Results of the analysis revealed a significant feedback main effect, $F(1,55) = 19.02, p < .0001$. Subjects who were in the positive feedback condition reported higher levels of intrinsic motivation than subjects in the negative feedback condition. The gender main effect, $F(1,55) = 1.76, p > .20$, and the gender \times feedback interaction, $F < 1$, were not significant. Simple main effects within gender were also conducted in order to probe further the potential differential effects of feedback on males' and females' intrinsic motivation. Results revealed that the feedback main effect was significant for both genders ($p < .01$). Finally, planned comparisons between the male and female/positive feedback conditions revealed that they were not significantly different ($p > .10$) from each other.

Similarly, a 2 (gender) \times 2 (feedback) ANOVA was performed on the competence feelings scale. Results revealed a significant feedback main effect, $F(1,54) = 85.73, p < .00001$. Subjects in the positive feedback conditions reported higher levels of feelings of competence than subjects in the negative feedback conditions. The gender main effect $F(1,54) = 1.91, p > .18$ and the gender \times feedback interaction, $F < 1$, were not significant. Means for intrinsic motivation and competence feelings as a function of gender and feedback appear in Table 1.

TABLE 1
Means for intrinsic motivation and feelings of competence as a function of gender and verbal feedback

Feedback		MALES		FEMALES	
		Intrinsic Motivation	Competence	Intrinsic Motivation	Competence
Positive	M	130.6	47.8	119.7	44.4
	SD	(15.58)	(6.65)	(21.26)	(6.83)
Negative	M	103.2	31.6	99.8	30.6
	SD	(25.00)	(5.19)	(20.00)	(5.75)

NOTE: Scores in brackets are standard deviations.

Path analysis

Finally, in order to determine the causal effects of competence feelings on intrinsic motivation, a path analysis (Asher, 1976) was performed through multiple regression analysis with the Mayo TRQ scores serving as criterion variable and competence feelings and verbal feedback serving as predictor variables. In order to use verbal feedback as predictor variables, "dummy" coding procedures outlined by Kerlinger and Pedhazur (1973) were used. More specifically, subjects in the negative feedback condition were given a score of 1, while those in the positive feedback condition received a score of 2. In order to provide an appropriate test of the mediating effects of feelings of competence on intrinsic motivation, the direct effect of feelings of competence was compared to that of verbal feedback. If feelings of competence play a mediating role in the intrinsic motivation-verbal feedback relation, their direct effect on intrinsic motivation should be stronger than that of verbal feedback.

Results from the path analysis appear in Figure 1. The path analysis reveals a picture clearly in line with a mediating model: the more positive the feedback provided, the more one felt competent ($P = .754$), and in turn the more one felt competent, the higher the level of intrinsic motivation experienced ($P = .405$). The direct effect of verbal feedback ($P = .183$) was not significant ($p > .10$).¹

DISCUSSION

The first purpose of this study was to assess the effect of positive feedback, relative to negative feedback, on males' and females' intrinsic motivation. Results

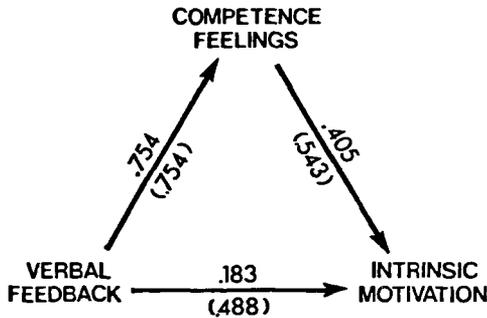


FIGURE 1. Path analysis depicting the mediating effects of competence feelings on the verbal feedback-intrinsic motivation relation for the overall sample. Path coefficients (beta weights) are over the arrow and the zero order correlations under the arrow.

¹Path analyses were also performed separately for the male and female subsamples. In general, results were similar with feelings of competence having an important direct effect on intrinsic motivation for both samples. This direct effect was more important for females than males, however. In light of the fact that these analyses were based on 30 subjects only and may be subject to the lack of stability of the correlations, results are not reported here.

from the gender \times feedback ANOVA revealed only a significant feedback main effect indicating that subjects, irrespective of gender, who received positive feedback reported higher levels of intrinsic motivation than subjects who received negative feedback. Complementary internal analyses found no gender differences as a function of feedback, thereby supporting these results. The present findings run contrary to Deci's (1975) position, which states that positive feedback enhances the intrinsic motivation of males but decreases that of females. On the other hand, the present results would appear to support the position of Blanck et al. (1984) to the effect that socialization content has changed since 1971 (time at which Deci conducted his studies on the effect of positive feedback on males' and females' intrinsic motivation) and that gender differences in intrinsic motivation as a function of positive feedback do not occur nowadays.

Unfortunately, the matter is not so simple. As was indicated in the introduction section, two relatively recent studies (Kast, 1983; Zinser, Young, & King, 1982) have shown that positive feedback can produce decreases in female children's intrinsic motivation. This is especially likely to take place when the feedback is presented at a high rate (Zinser et al., 1982) and when it is ambiguous (i.e., part informational and part controlling; Kast, 1983). Further, these negative effects of the positive feedback do not occur with male children. Since these two studies were conducted roughly at the same time as those of Blanck et al. (1984), the Blanck et al. interpretation appears to be incomplete.

It is not entirely clear why the gender differences found in early research (e.g., Carone, 1975; Deci, 1972; Deci, Cascio, & Krusell, 1975) were obtained in recent studies with children (Kast, 1983; Zinser et al., 1982) but not in the Blanck et al. (1984) or in this study which employed college students. One interpretation might be that some changes have taken place in socialization content so that female university students nowadays perceive positive feedback as being more informational in nature than similar students a decade ago. These changes, however, may actually occur only for those females who interact in achievement-oriented settings today in the 1980s. This would imply that female individuals who do not go to college (or other types of achievement-oriented settings) and those who have not yet engaged in such settings (such as the young subjects of the Kast, 1983 and Zinser et al., 1982 studies) may still be subject to "traditional" socialization practices. These individuals may be predisposed to perceive positive feedback as being controlling and to undergo a consequential decrease in intrinsic motivation. While admittedly speculative, this hypothesis offers an explanation of the findings to be found in the literature and is empirically testable. Future research should address this issue.

While so far our analysis has focused on the effect of positive feedback, very little has been said on the processes underlying such changes. Cognitive evaluation theory, surprisingly, offers little in this regard. The theory simply posits that when an event (e.g., verbal feedback) is perceived as being controlling, this leads

to intrinsic motivation decrements, whereas when it is perceived as being informational, increases in intrinsic motivation occur. The theory does not specify the nature of the processes underlying such differential perceptions. In line with recent research in social cognition (e.g., Fiske & Taylor, 1984), it is posited that evaluation of the meaning of positive feedback is guided by schemas based on prior experience with this type of feedback. Self-schemas serve as filters through which the world is perceived and thus should influence motivation and behaviour indirectly through their influence on cognitions (see Markus, 1977, 1983). It is hypothesized that differential perceptions (i.e., controlling vs. informational) of positive feedback are triggered by different schemas related to positive feedback. Individuals who have developed through personal experience what may be called "controlling schemas" should perceive positive feedback as controlling, and consequently their intrinsic motivation should be undermined. On the other hand, individuals with "informational schemas" should perceive the feedback as informational in nature and intrinsic motivation should be enhanced. This hypothesis deserves to be tested as it may yield potentially important insights into the psychological processes underlying differential perceptions of verbal feedback.

In addition, results of the path analysis involving verbal feedback, intrinsic motivation, and feelings of competence extend those of Vallerand and Reid (1984) who have demonstrated that the effects of positive and negative verbal feedback on the intrinsic motivation of male subjects are mediated by perceptions of competence. Results from the present study revealed that this process also operated for a sample comprised of male and female subjects. Thus, these results coupled with that of Vallerand and Reid (1984) provide strong support for cognitive evaluation theory's perceived competence process.

These findings are also congruent with recent findings from Harter and Connell (1984). Using structural equation models these researchers were able to show that the most important determinant of intrinsic motivation toward school was competence affect. While their measure of competence affect was not measured in the same fashion as the one used in this study, it nevertheless underscores the fundamental importance of affect in guiding intrinsic motivation.

In sum, results of the present study showed that positive verbal feedback, relative to negative feedback, led to higher levels of intrinsic motivation for both male and female subjects, and that these effects were largely mediated by feelings of competence. Future research should be directed at attempting to delineate the nature of psychological processes involved in the perception and evaluation of controlling/informational verbal feedback. It is believed that such research should be conducted both in the lab and in the field. It is with such an interplay between research conducted in controlled and realistic settings that we will ultimately further our knowledge on factors and processes involved in intrinsic motivation changes.

RÉSUMÉ

Les recherches portant sur les effets du renforcement verbal sur la motivation intrinsèque révèlent que le renforcement verbal négatif abaisse la motivation intrinsèque des hommes et des femmes. Les résultats obtenus avec le renforcement verbal positif, par contre, sont équivoques. Plus spécifiquement, certaines études ont démontré que le renforcement positif augmentait la motivation intrinsèque des hommes mais diminuait celle des femmes. Cependant, un certain nombre d'études n'ont pas reproduit ces résultats. Le premier but de cette étude était de clarifier cette situation ambiguë en étudiant les effets relatifs du renforcement verbal positif et négatif sur la motivation intrinsèque des hommes et des femmes. Le second but de cette étude était de reproduire les résultats de Vallerand et Reid (1984) en ce qui concerne les effets médiateurs des sentiments de compétence dans la relation renforcement verbal-motivation intrinsèque. Des étudiants universitaires masculins et féminins participèrent à une activité intéressante et reçurent un renforcement verbal positif ou négatif sur leur performance. Les sujets répondirent par la suite à des questionnaires mesurant leur motivation intrinsèque et leurs sentiments de compétence. Les résultats démontrèrent que, comparativement au renforcement verbal négatif, le renforcement positif produisit des pointages de motivation intrinsèque et de sentiments de compétence plus élevés, et ce pour les hommes et les femmes. En plus, les résultats d'une analyse acheminatoire, impliquant le renforcement verbal, les sentiments de compétence et la motivation intrinsèque, brossèrent un tableau conforme avec un modèle médiateur. Les résultats sont discutés à la lumière de la théorie de l'évaluation cognitive et des suggestions pour des recherches futures sont proposées.

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